

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended claim 1 to further clarify the subject matter of the present invention. Support for the amendment to claim 1 may be found, for example, on page 12, lines 7-9 and 13-16 of the specification. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art.

II. The Rejection Of Claims 1-9 Under 35 U.S.C. § 103

Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Acknowledged Prior Art (APA) in view of Teong (USP No. 6,025,634) and/or Yagishita et al. (USP 6,887,747). Applicants respectfully traverse this rejection for at least the following reasons.

With regard to the present invention, amended claim 1 discloses a silicon carbide semiconductor device comprising: a semiconductor layer made of silicon carbide; an electrode provided on the semiconductor layer; an interlayer dielectric film provided on the electrode; wherein the electrode comprises: a first electrode portion in contact with the semiconductor layer; and a second electrode portion interposed between the first electrode portion and the interlayer dielectric film so as not to allow the first electrode portion to be in direct contact with the interlayer dielectric film, and the second electrode portion is made of a material whose adhesion to the interlayer dielectric film is higher than an adhesion of a material of the first electrode portion to the interlayer dielectric film.

In contrast to the present invention, Teong fails to disclose a semiconductor device having a second electrode portion interposed between the first electrode portion and the interlayer dielectric film so as not to allow the first electrode portion to be in direct contact with the interlayer dielectric film. As is shown in Fig. 5A of Teong, although the second layer 44a is formed directly over the first layer 42a', a side portion of the first layer is in direct contact with the dielectric layer 46a.

With regard to Yagishita, the Examiner alleges that the electrode disclosed in Yagishita is comprised of a first layer, 115 and a second layer 114. However, Yagishita teaches, in col. 4, lines 34-35, "a source/drain electrode 114 is formed on the Schottky junctioned source/drain 115." Thus, the alleged first layer is not a part of the electrode at all, but merely a source/drain region 115 located underneath the source/drain electrode 114. Accordingly, Yagishita fails to disclose an electrode provided on the semiconductor layer comprising a first electrode portion and a second electrode portion. Furthermore, since Yagishita does not disclose a first and second electrode layers, Yagishita also fails to disclose a second electrode portion interposed between the first electrode portion and the interlayer dielectric film so as not to allow the first electrode portion to be in direct contact with the interlayer dielectric film.

Moreover, one aspect of the APA is to prevent a source electrode and an interlayer dielectric film from being separated when silicon carbide is used as a semiconductor device. Thus, the (APA) has a structure in which the first electrode portion is in contact with the source electrode and the second electrode portion is in contact with the interlayer dielectric film. In contrast, one object of the invention of Teong is to prevent a contact leakage connection between a source electrode and an upper wiring thereby forming a low contact resistance. Teong fails to disclose a semiconductor layer comprised of silicon carbide. As the object of the APA is

applicable to solving a problem associated with a semiconductor comprised of silicon carbide, a skilled artisan would not be motivated to combine Teong with the APA. Nor is there any motivation or suggestion in the prior art to combine the two references. As such, the proposed combination of the APA and Teong is improper.

In order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA1974). At a minimum, as the APA, Teong and Yagishita fail to teach or suggest a silicon carbide semiconductor device comprising: wherein the second electrode portion is made of a material whose adhesion to the interlayer dielectric film is higher than an adhesion of a material of the first electrode portion to the interlayer dielectric film, and there is no motivation to combine the references in the manner suggested in the pending rejection, it is submitted that the APA, Teong and Yagishita, alone or in combination, do not render claim 1 obvious. Accordingly, it is respectfully requested that the § 103 rejection of claim 1, and any pending claims dependent thereon be withdrawn.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

IV. Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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